Ngss High School Biology Scope And Sequence

When it's time for a game change, you need a guide to the new rules. Helping Students Make Sense of the World Using Next Generation Science and Engineering Practices provides a play-by-play understanding of the practices strand of A Framework for K–12 Science Education (Framework) and the Next Generation Science Standards (NGSS). Written in clear, nontechnical language, this book provides a wealth of real-world examples to show you what's different about practice-centered teaching and learning at all grade levels.

The book addresses three important questions: 1. How will engaging students in science and engineering practices help improve science education? 2. What do the eight practices look like in the classroom? 3. How can educators engage students in practices to bring the NGSS to life? Helping Students Make Sense of the World Using Next Generation Science and Engineering Practices was developed for K–12 science teachers, curriculum developers, teacher educators, and administrators. Many of its authors contributed to the Framework's initial vision and tested their ideas in actual science classrooms. If you want a fresh game plan to help students work together to generate and revise knowledge—not just receive and repeat information—this book is for you.

Represents the content of science education and includes the essential skills and knowledge students will need to be scientically literate citizens. Includes grade-level specific content for kindergarten through eighth grade, with sixth grade focus on earth science, seventh grade focus on life science, eighth grade focus on physical science. Standards for grades nine through twelve are divided into four content strands: physics, chemistry, biology/life sciences, and earth sciences.

This book shows principals how to successfully balance the needs and priorities of their schools while continuously developing and refining their leadership skills.

Hmh Biology 2017

The International Baccalaureate
Lab Investigations for Grades 9-12
Helping Students Make Sense of the World Using Next Generation Science and Engineering Practices
Teaching for Conceptual Understanding in Science
Using Socioscientific Issues to Develop Scientific Literacy, K-12

Like three guides in one, Scientific Argumentation in Biology combines theory, practice, and biological content. This thought-provoking book starts by giving you solid background in why students need to be able to go beyond expressing mere opinions when making

research-related biology claims. Then it provides 30 field-tested activities your students can use when learning to propose, support, and evaluate claims; validate or refute them on the basis of scientific reasoning; and craft complex written arguments. Detailed teacher notes suggest specific ways to use the activities to enrich and supplement (not replace) what you're doing in class already. You'll find Scientific Argumentation to be an ideal way to help your students learn standards-based content, improve their practices, and develop scientific habits of mind.

Concepts of Biology is designed for the single-semester

introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons,

Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand.We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that

incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.
A Framework for K-12 Science Education and Next Generation Science Standards (NGSS) describe a new vision for science learning and teaching that is catalyzing improvements in science classrooms across the United States. Achieving this new vision will require time, resources, and ongoing commitment from state, district, and school leaders, as well as classroom teachers. Successful implementation of the NGSS will ensure that all K-12 students have high-quality opportunities to learn science. Guide to Implementing

the Next Generation Science Standards provides guidance to district and school leaders and teachers charged with developing a plan and implementing the NGSS as they change their curriculum, instruction, professional learning, policies, and assessment to align with the new standards. For each of these elements, this report lays out recommendations for action around key issues and cautions about potential pitfalls. Coordinating changes in these aspects of the education system is challenging. As a foundation for that process, Guide to Implementing the Next Generation Science Standards identifies some overarching principles that

should guide the planning and implementation process. The new standards present a vision of science and engineering learning designed to bring these subjects alive for all students, emphasizing the satisfaction of pursuing compelling questions and the joy of discovery and invention. Achieving this vision in all science classrooms will be a major undertaking and will require changes to many aspects of science education. Guide to Implementing the Next Generation Science Standards will be a valuable resource for states, districts, and schools charged with planning and implementing changes, to help them achieve the goal of teaching

science for the 21st century.

Kindergarten Through Grade Twelve

A Framework to Deepen Student Understanding

Developing Assessments for the Next Generation Science Standards

Biology 2e

Guide to Implementing the Next Generation Science Standards

Designing Standards-Based Instruction Through the Lens of NGSS

"If you've been trying to figure out how crosscutting concepts (CCCs) fit into three-dimensional learning, this in-depth resource

will show you their usefulness across the sciences. Crosscutting Concepts: Strengthening Science and Engineering Learning is designed to help teachers at all grade levels (1) promote students' sensemaking and problem-solving abilities by integrating CCCs with science and engineering practices and disciplinary core ideas; (2) support connections across multiple disciplines and diverse contexts; and (3) use CCCs as a set of lenses through which students can learn about the world around them. The book is divided into the following four sections. Foundational issues that undergird crosscutting concepts. You'll see how CCCs can change your instruction, engage your students in science, and broaden access and inclusion for all students in the science classroom. An in-depth look at individual CCCs. You'll learn to

use each CCC across disciplines, understand the challenges students face in learning CCCs, and adopt exemplary teaching strategies. Ways to use CCCs to strengthen how you teach key topics in science. These topics include the nature of matter, plant growth, and weather and climate, as well as engineering design. Ways that CCCs can enhance the work of science teaching. These topics include student assessment and teacher professional collaboration. Throughout the book, vignettes drawn from the authors' own classroom experiences will help you put theory into practice. Instructional Applications show how CCCs can strengthen your planning. Classroom Snapshots offer practical ways to use CCCs in discussions and lessons. No matter how you use this book to enrich your thinking, it will help you leverage the

power of CCCs to strengthen students' science and engineering learning. As the book says, "CCCs can often provide deeper insight into phenomena and problems by providing complementary perspectives that both broaden and sharpen our view on the rapidly changing world that students will inherit.""-- "Through 19 carefully sequenced lessons and activities, this unit gets middle schoolers ready for next-level learning. Students explore what happens at the molecular level so they can understand how living things grow and repair their body structures. Using Legos, ball-and-stick models, videos, and print manipulatives helps them retain what they learn so they can apply that knowledge later."-- Page [4] of cover.

This book approaches STEAM (Science, Technology,

Engineering, the Arts and Mathematics) in early childhood education from multiple angles. It focuses on the teaching and learning of children from two years of age to the early years of school. Proponents of STEAM describe how it can create opportunities for children to learn creatively, and various chapter authors make strong connections between discipline areas within the context of an informal curriculum. Others advocate for an integrated STEM, rather than STEAM, approach. With a light touch on theory and a focus on how to embed STE(A)M in an integrated early childhood curriculum, the editors and contributors examine the STEAM versus STEM question from multiple angles. The chapters provide helpful frameworks for parents, teachers and higher education institutions, and make

practical suggestions of ways to support young children's inquiry learning. Drawing on pedagogy and research from around the world, this book will be of interest to scholars of STEAM education, early childhood educators, students of early childhood education and parents of young children.
Toward High School Biology
Crosscutting Concepts

Hard-To-Teach Biology Concepts, Revised 2nd Edition
It's Debatable!
Bridging the Gap Between Three-Dimensional Standards, Research, and Practice
Presents a multifaceted model of

understanding, which is based on the premise that people can demonstrate understanding in a variety of ways. Author Page Keeley continues to provide KOCo12 teachers with her highly usable and popular formula for uncovering and addressing the preconceptions that students bring to the classroomOCothe formative assessment probeOCoin this first book devoted exclusively to life science in her Uncovering Student Ideas in Science series. Keeley addresses the

topics of life and its diversity; structure and function; life processes and needs of living things; ecosystems and change; reproduction, life cycles, and heredity; and human biology." Making scientific literacy happen within the new vision of science teaching and learning. Engage students in using and applying disciplinary content, scientific and engineering practices, and crosscutting concepts within curricular topics, and they will

develop a scientifically-based and coherent view of the natural and designed world. The latest edition of this best-seller will help you make the shifts needed to reflect current practices in curriculum, instruction, and assessment. The book includes: • An increased emphasis on STEM • 103 separate curriculum topic study guides • Connections to content knowledge, curricular and instructional implications, concepts and specific

ideas, research on student learning, K-12 articulation, and assessment
Translating the NGSS for Classroom Instruction
Choosing and Using the Best Instructional Materials for Your Students
NSTA ATLAS OF THE THREE DIMENSIONS.
Benchmarks for Science Literacy
Embedding STEAM in Early Childhood Education and Care
Disciplinary Core Ideas

This book encourages scientific literacy by showing you how to teach the understanding and thinking skills your students need to explore real-world questions like these: Should schools charge a tax to discourage kids from eating unhealthy foods?Should local governments lower speed limits to reduce traffic fatalities? Should pharmaceutical companies be allowed to advertise prescription drugs directly to consumers? At the core of the exploration is the Socioscientific Issues Framework. The framework gives students practice in the research, analysis, and argumentation necessary to grapple with difficult

questions and build scientific literacy. After introducing the concept of the framework and explaining how it aligns with the Next Generation Science Standards, the book shows you how to implement it through seven units targeted to the elementary, middle, and high school levels. You even find out how to develop your own socioscientific issues curriculum. Both practical and content-rich, It's Debatable! doesn't shy away from controversy.Instead, the authors encourage you and your students to confront just how messy the questions raised by science (and pseudoscience) can

be. After all, as the authors note, The only way for our students to be prepared for participation in societal discourse is to have practice in their school years, and what better place than the science classroom?

How to engineer change in your middle school science classroom With the Next Generation Science Standards, your students won ' t just be scientists—they ' ll be engineers. But you don ' t need to reinvent the wheel. Seamlessly weave engineering and technology concepts into your middle school math and science lessons with this

collection of time-tested engineering curricula for science classroom materials. Features include: A handy table that leads you to the chapters you need In-depth commentaries and illustrative examples A vivid picture of each curriculum, its learning goals, and how it addresses the NGSS More information on the integration of engineering and technology into middle school science education

2018 Outstanding Academic Title, Choice Ambitious Science Teaching outlines a powerful framework for science teaching to ensure that instruction is rigorous and equitable for students from all

backgrounds. The practices presented in the book are being used in schools and districts that seek to improve science teaching at scale, and a wide range of science subjects and grade levels are represented. The book is organized around four sets of core teaching practices: planning for engagement with big ideas; eliciting student thinking; supporting changes in students ' thinking; and drawing together evidence-based explanations. Discussion of each practice includes tools and routines that teachers can use to support students ' participation, transcripts of actual student-teacher

dialogue and descriptions of teachers ' thinking as it unfolds, and examples of student work. The book also provides explicit guidance for " opportunity to learn " strategies that can help scaffold the participation of diverse students. Since the success of these practices depends so heavily on discourse among students, Ambitious Science Teaching includes chapters on productive classroom talk. Science-specific skills such as modeling and scientific argument are also covered. Drawing on the emerging research on core teaching practices and their extensive work with preservice and in-

service teachers, Ambitious Science Teaching presents a coherent and aligned set of resources for educators striving to meet the considerable challenges that have been set for them.

NGSS for All Students

Astronomy

How Climate Change Is Taught in America

Project-based Inquiry Science

Understanding by Design

Science Fair Handbook

It's challenging to teach science well to all students while connecting your

lessons to the Next Generation Science Standards (NGSS). This unique book portrays real teaching scenarios written by the teachers on the NGSS Diversity and Equity Team. The seven authentic case studies vividly illustrate research-and standards-based classroom strategies you can use to engage seven diverse demographic groups: economically disadvantaged students; students from major racial and ethnic groups; students with

disabilities; English language learners; girls; students in alternative education; and gifted and talented students. Supplementing the case studies are additional chapters to deepen your understanding of the strategies and make what you learn more usable. These chapters address how to design units with the NGSS and diversity in mind, apply a rubric to improve your teaching using the NGSS with diverse student groups, and use

the case studies in teacher study groups. Furthermore, leaders of the NGSS, including Helen Quinn, Stephen Pruitt, Andres Henriquez, and Joe Krajcik, offer their insights and commitments to diversity and equity.

Like all enthusiastic teachers, you want your students to see the connections between important science concepts so they can grasp how the world works now, and maybe even make it work better in the future. But how

exactly do you help them learn and apply these core ideas? Just as its subtitle says, this important book aims to reshape your approach to teaching and your students' way of learning. Building on the foundation provided by A Framework for K-12 Science Education, which informed the development of the Next Generation Science Standards, the book's four sections cover these broad areas: Physical science core ideas that explain phenomena as diverse as why

water freezes and how information can be sent around the world wirelessly; Life science core ideas that explore phenomena such as why children look similar but not identicle to their parents and how human behaviour affects global ecosystems; Earth and space sciences core ideas focus on complex interactions in the Earth system and examine phenomena as varied as the big bang and global climate change; Engineering technology, and

applications of science core ideas highlight engineering design and how it can contribute innovative solutions to society's problems. Disciplinary Core Ideas can make your science lessons more coherent and memorable, regardless of what subject matter you cover and what grade you teach. Think of it as a conceptual tool kit you can use to help your students learn important and useful science now, and continue learning throughout their lives.

A Framework for K-12 Science EducationPractices, Crosscutting Concepts, and Core IdeasNational Academies Press
The Living Environment
Science Curriculum Topic Study
30 Classroom Activities
An Experiment in International Education
Material World
Ambitious Science Teaching
Why are so many American children learning so

much misinformation about climate change? Investigative reporter Katie Worth reviewed scores of textbooks, built a 50-state database, and traveled to a dozen communities to talk to children and teachers about what is being taught, and found a red-blue divide in climate education. More than one-third of young adults believe that climate change is not man-made, and science teachers who teach global warming are being contradicted by history teachers who tell children not to worry about it. Who has tried to influence what children learn, and how successful have they been? Worth connects the dots to find out

how oil corporations, state legislatures, school boards, and textbook publishers sow uncertainty, confusion, and distrust about climate science. A thoroughly researched, eye-opening look at how some states do not want children to learn the facts about climate change.

" ... Provides essential guidance for everyone from teachers to school administrators to district and state science coordinators. As practical as it is timely, this book includes an introduction to the NGSS ; examples of the standards translated to classroom instruction in elementary, middle, and high school ;

and assistance in adapting current units of instruction to align with the standards"--Page 4 of cover.

Published to glowing praise in 1990, Science for All Americans defined the science-literate American--describing the knowledge, skills, and attitudes all students should retain from their learning experience--and offered a series of recommendations for reforming our system of education in science, mathematics, and technology. Benchmarks for Science Literacy takes this one step further. Created in close consultation with a cross-

section of American teachers, administrators, and scientists, Benchmarks elaborates on the recommendations to provide guidelines for what all students should know and be able to do in science, mathematics, and technology by the end of grades 2, 5, 8, and 12. These grade levels offer reasonable checkpoints for student progress toward science literacy, but do not suggest a rigid formula for teaching. Benchmarks is not a proposed curriculum, nor is it a plan for one: it is a tool educators can use as they design curricula that fit their student's needs and meet the goals first outlined in Science for All

Americans. Far from pressing for a single educational program, Project 2061 advocates a reform strategy that will lead to more curriculum diversity than is common today. IBenchmarks emerged from the work of six diverse school-district teams who were asked to rethink the K-12 curriculum and outline alternative ways of achieving science literacy for all students. These teams based their work on published research and the continuing advice of prominent educators, as well as their own teaching experience. Focusing on the understanding and interconnection of key concepts rather than rote

memorization of terms and isolated facts, Benchmarks advocates building a lasting understanding of science and related fields. In a culture increasingly pervaded by science, mathematics, and technology, science literacy require habits of mind that will enable citizens to understand the world around them, make some sense of new technologies as they emerge and grow, and deal sensibly with problems that involve evidence, numbers, patterns, logical arguments, and technology--as well as the relationship of these disciplines to the arts, humanities, and vocational

sciences--making science literacy relevant to all students, regardless of their career paths. If Americans are to participate in a world shaped by modern science and mathematics, a world where technological know-how will offer the keys to economic and political stability in the twenty-first century, education in these areas must become one of the nation's highest priorities. Together with Science for All Americans, Benchmarks for Science Literacy offers a bold new agenda for the future of science education in this country, one that is certain to prepare our children for life in the twenty-first

century.

Concepts of Biology

The Go-To Guide for Engineering Curricula, Grades 6-8

Uncovering Student Ideas in Life Science

Reading Nature

Engaging Biology Students with Evidence from the Living World

Uncovering Student Ideas in Science: 25 formative assessment probes

Photographs show the homes and possessions of average families in thirty countries around the world and document

each family's lifestyle

Using probes as diagnostic tools that identify and analyze students' preconceptions, teachers can easily move students from where they are in their current thinking to where they need to be to achieve scientific understanding.

Describes the basics of science fair projects and procedures, provides assistance in creating the perfect project for you, explains how to do research, and gives guidance in the different stages of a project.

Strengthening Science and Engineering Learning

Argument-Driven Inquiry in Chemistry

Scientific Argumentation in Biology

Reshaping Teaching and Learning

Qualities of Effective Principals

Practices, Crosscutting Concepts, and Core Ideas
Assessments, understood as tools for tracking what and how well students have learned, play a critical role in the classroom. Developing Assessments for the Next Generation Science Standards develops an approach to science assessment to meet the vision of science education for the future as it has been elaborated in A Framework for K-12 Science Education (Framework) and Next Generation Science Standards (NGSS). These documents are brand new and the changes they call for are barely under way, but the new assessments will be needed

as soon as states and districts begin the process of implementing the NGSS and changing their approach to science education. The new Framework and the NGSS are designed to guide educators in significantly altering the way K-12 science is taught. The Framework is aimed at making science education more closely resemble the way scientists actually work and think, and making instruction reflect research on learning that demonstrates the importance of building coherent understandings over time. It structures science education around three dimensions - the practices through which scientists

and engineers do their work, the key crosscutting concepts that cut across disciplines, and the core ideas of the disciplines - and argues that they should be interwoven in every aspect of science education, building in sophistication as students progress through grades K-12. Developing Assessments for the Next Generation Science Standards recommends strategies for developing assessments that yield valid measures of student proficiency in science as described in the new Framework. This report reviews recent and current work in science assessment to determine which aspects of the

Framework's vision can be assessed with available techniques and what additional research and development will be needed to support an assessment system that fully meets that vision. The report offers a systems approach to science assessment, in which a range of assessment strategies are designed to answer different kinds of questions with appropriate degrees of specificity and provide results that complement one another. Developing Assessments for the Next Generation Science Standards makes the case that a science assessment system that meets the Framework's

vision should consist of assessments designed to support classroom instruction, assessments designed to monitor science learning on a broader scale, and indicators designed to track opportunity to learn. New standards for science education make clear that new modes of assessment designed to measure the integrated learning they promote are essential. The recommendations of this report will be key to making sure that the dramatic changes in curriculum and instruction signaled by Framework and the NGSS reduce inequities in science education and raise the level of science education

for all students.

Science, engineering, and technology permeate nearly every facet of modern life and hold the key to solving many of humanity's most pressing current and future challenges. The United States' position in the global economy is declining, in part because U.S. workers lack fundamental knowledge in these fields. To address the critical issues of U.S. competitiveness and to better prepare the workforce, A Framework for K-12 Science Education proposes a new approach to K-12 science education that will capture students' interest and provide them with the

necessary foundational knowledge in the field. A Framework for K-12 Science Education outlines a broad set of expectations for students in science and engineering in grades K-12. These expectations will inform the development of new standards for K-12 science education and, subsequently, revisions to curriculum, instruction, assessment, and professional development for educators. This book identifies three dimensions that convey the core ideas and practices around which science and engineering education in these grades should be built. These three dimensions are: crosscutting

concepts that unify the study of science through their common application across science and engineering; scientific and engineering practices; and disciplinary core ideas in the physical sciences, life sciences, and earth and space sciences and for engineering, technology, and the applications of science. The overarching goal is for all high school graduates to have sufficient knowledge of science and engineering to engage in public discussions on science-related issues, be careful consumers of scientific and technical information, and enter the careers of their choice. A Framework for K-12

Science Education is the first step in a process that can inform state-level decisions and achieve a research-grounded basis for improving science instruction and learning across the country. The book will guide standards developers, teachers, curriculum designers, assessment developers, state and district science administrators, and educators who teach science in informal environments.

This well-researched book provides a valuable instructional framework for high school biology teachers as they tackle five particularly challenging concepts in their classrooms, meiosis,

photosynthesis, natural selection, proteins and genes, and environmental systems and human impact. The author counsels educators first to identify students' prior conceptions, especially misconceptions, related to the concept being taught, then to select teaching strategies that best dispel the misunderstandings and promote the greatest student learning. The book is not a prescribed set of lesson plans. Rather it presents a framework for lesson planning, shares appropriate approaches for developing student understanding, and provides opportunities to reflect and apply those approached

to the five hard-to-teach topics. More than 300 teacher resources are listed.

Miseducation

Ever-changing Earth

A Natural Approach to Chemistry: Student text

A Global Family Portrait

Understanding Growth in Living Things

Engineering in the Life Sciences, 9-12

You know it's tough to convey some foundational biology concepts. This thoroughly revised book is designed to support you as you plan and implement NGSS-aligned lessons that will engage students with

biology concepts that many find especially challenging. The book is organized into two parts that feature an instructional framework and resources that support framework implementation and is designed for both veteran teachers and newcomers to the classroom. Part I, The Toolbox, introduces a research-based Instructional Planning Framework that helps you to understand the learning needs your students bring to class, incorporate appropriate teaching strategies and interpret the framework and teaching tools through the lens of NGSS. Part II, Toolbox Implementation, models use of the framework with four -hard-to-teach topics, all different from the ones in the book's first edtion.

Contributing authors show you how the framework helps teach the NGSS's four disciplinary core ideas: growth and development of organisms, ecosystems, heredity, and biological evolution. As the contributing authors make clear, the teaching models are specific and help to make student thinking visible, but they don't presume to dictate what's right for you. Rather, the book will open your mind to fresh, effective ways to help biology students deepen their conceptual understanding based on what works best for them and you in today's classrooms.

Astronomy is written in clear non-technical language, with the occasional touch of humor and a wide range

of clarifying illustrations. It has many analogies drawn from everyday life to help non-science majors appreciate, on their own terms, what our modern exploration of the universe is revealing. The book can be used for either aone-semester or two-semester introductory course (bear in mind, you can customize your version and include only those chapters or sections you will be teaching.) It is made available free of charge in electronic form (and low cost in printed form) to students around the world. If you have ever thrown up your hands in despair over the spiraling cost of astronomy textbooks, you owe your students a good look at this one. Coverage and Scope Astronomy was written, updated, and

reviewed by a broad range of astronomers and astronomy educators in a strong community effort. It is designed to meet scope and sequence requirements of introductory astronomy courses nationwide. Chapter 1: Science and the Universe: A Brief Tour Chapter 2: Observing the Sky: The Birth of Astronomy Chapter 3: Orbits and Gravity Chapter 4: Earth, Moon, and Sky Chapter 5: Radiation and Spectra Chapter 6: Astronomical Instruments Chapter 7: Other Worlds: An Introduction to the Solar System Chapter 8: Earth as a Planet Chapter 9: Cratered Worlds Chapter 10: Earthlike Planets: Venus and Mars Chapter 11: The Giant Planets Chapter 12: Rings, Moons, and Pluto Chapter 13: Comets and

Asteroids: Debris of the Solar System Chapter 14: Cosmic Samples and the Origin of the Solar System Chapter 15: The Sun: A Garden-Variety Star Chapter 16: The Sun: A Nuclear Powerhouse Chapter 17: Analyzing Starlight Chapter 18: The Stars: A Celestial Census Chapter 19: Celestial Distances Chapter 20: Between the Stars: Gas and Dust in Space Chapter 21: The Birth of Stars and the Discovery of Planets outside the Solar System Chapter 22: Stars from Adolescence to Old Age Chapter 23: The Death of Stars Chapter 24: Black Holes and Curved Spacetime Chapter 25: The Milky Way Galaxy Chapter 26: Galaxies Chapter 27: Active Galaxies, Quasars, and Supermassive Black Holes Chapter 28: The Evolution

and Distribution of Galaxies Chapter 29: The Big Bang Chapter 30: Life in the Universe Appendix A: How to Study for Your Introductory Astronomy Course Appendix B: Astronomy Websites, Pictures, and Apps Appendix C: Scientific Notation Appendix D: Units Used in Science Appendix E: Some Useful Constants for Astronomy Appendix F: Physical and Orbital Data for the Planets Appendix G: Selected Moons of the Planets Appendix H: Upcoming Total Eclipses Appendix I: The Nearest Stars, Brown Dwarfs, and White Dwarfs Appendix J: The Brightest Twenty Stars Appendix K: The Chemical Elements Appendix L: The Constellations Appendix M: Star Charts and Sky Event Resources

A Framework for K-12 Science Education
Problem-Based Learning in the Life Science Classroom K-12
Science Content Standards for California Public Schools
Hard-to-teach Biology Concepts